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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,344	11/14/2003	Koji Iwasawa	03327.2314	1187

22852 7590 05/06/2005

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EXAMINER

DOLE, TIMOTHY J

ART UNIT PAPER NUMBER

2858

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,344

Applicant(s)

IWASAWA, KOJI

Examiner

Timothy J. Dole

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/14/03, 5/19/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. in view of Peck et al.

Referring to claims 1-3, Tanaka et al. discloses an ion source device and method comprising: an ion source (fig. 3 (2)) having a filament (fig. 13 (23)) for emitting thermoelectrons (column 14, lines 50-63); a current measuring device for measuring current flowing through the filament (column 12, lines 10-11); a voltage measuring device for measuring voltage across the filament (column 12, lines 10-11) and a resistance operation device (fig. 13 (171)) for computing a resistance value of the filament by using the current and the voltage measured by the current and voltage measuring devices (column 11, lines 33-38).

Tanaka et al. does not disclose a prediction operation device for computing a time till an application limits of the filament or a time left till the application limits of the filament, on the basis of a rate of change of the resistance value computed by the resistance operation device.

Peck et al. discloses predicting a lifetime of a filament comprising a prediction operation device for computing a time till an application limits of the filament or a time left till the application limits of the filament, on the basis of a rate of change of the resistance value computed by the resistance operation device (page 4, paragraphs [0040-0042]).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the lifetime prediction of Peck et al. into the device and method of Tanaka et al. for the purpose of giving advanced warning of when the filament needs to be replaced whereby leading to a more efficient device (page 4, paragraph [0042]).

Referring to claim 4, Tanaka et al. discloses the device as claimed except for a display device for displaying the time till the application limits of the filament or the time left till the application limits of the filament.

Peck et al. discloses a display device for displaying (fig. 5 (508)) the time till the application limits of the filament or the time left till the application limits of the filament (page 8, paragraph [0067]).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the display device of Peck et al. into the device of Tanaka et al. for the same purpose as given in claims 1-3, above.

Referring to claim 5, Tanaka et al. discloses the device as claimed except for a comparing device for comparing the time left till the application limits of the filament with a predetermined reference value, and producing an alarm signal when the time left

till the application limits of the filament is smaller than the predetermined reference value.

Peck et al. discloses a comparing device (fig. 5 (506)) for comparing the time left till the application limits of the filament with a predetermined reference value, and producing an alarm signal when the time left till the application limits of the filament is smaller than the predetermined reference value (page 8, paragraphs [0066-0067]).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the comparing device of Peck et al. into the device of Tanaka et al. for the same purpose as given in claims 1-3, above.

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to filament lifetime.

USPN 6,646,268 to Murakoshi et al.: This patent shows an apparatus for increasing filament lifetime by increasing the filament resistance.

USPN 5,943,594 to Bailey et al.: This patent shows an apparatus for increasing filament lifetime by increasing the filament resistance.

USPN 5,438,238 to Toy et al.: This patent shows an apparatus for increasing filament lifetime by increasing the filament resistance.

Conclusion

Art Unit: 2858

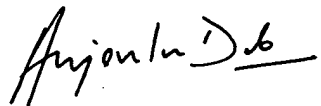
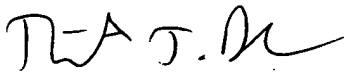
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Dole whose telephone number is (571) 272-2229.

The examiner can normally be reached on Mon. thru Fri. from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJD



**ANJAN DEB
PRIMARY EXAMINER**